

Appl. No. 09/208105
Amtd. dated Mar. 16, 2004
Reply to Office action of Oct. 27, 2003

REMARKS

A minor correction has been made to Figure 2. Minor corrections have been made to the specification. Claim 9 has been re-arranged to clarify intent of the claim. Claims 9-14 remain pending. Reconsideration and reexamination of the application, as amended, are requested.

A minor correction has been made to Figure 2. A line was missing on the right side of the figure. The line has been added to properly show the "gate" layer. Approval by the Examiner is requested.

Applicant thanks the Examiner for meeting with the undersigned Applicant's attorney on February 20, 2004. The objection to the drawings, the rejections, and Sakamoto were discussed similar to the discussion presented herein.

In the Official Action, the Examiner objected to the proposed correction to Figure 1. Applicant requests reconsideration.

Item 13 was deleted since item 13 did not appear in the specification. This is an obvious correction and should be acceptable.

Figure 1 shows opening 25 in the middle of the figure and without having the numeral "25" also shows portions of similar openings on the left and right sides of the figure. In support of this, it is noted that Figure 2 shows two openings "25". The opening "25" in the front of the figure is a partial showing of the opening similar to the partial openings at the left and right sides of Figure 1. Likewise, Figure 7B shows the formation of opening 25 and of partial openings on the left and right sides of the figure. Figure 8 shows a uniform irradiation of the semiconductor device wherein partial openings are provided at the left and right sides of the figure.

For the sake of consistency, the pattern of "x's" under the partial openings at the left and right sides of Figure 1 should be the same as under opening 25 in the middle of Figure 1. The proposed correction makes the "x's" the same. This is simply a correction for the sake of consistency throughout the several drawings. In this regard, it is noted that in prior art Figures 9 and 10 that the patterns of "x's" under openings in the mask are the same. It was simply an error on the part of Applicant not to make the pattern of "x's" on the left and right sides of Figure 1 the same as under the opening 25 in the middle of Figure 1.

Although there is some singular/plural inconsistency in the language in the specification, it is submitted that the specification also supports the drawing correction to Figure 1. In this

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regard, Applicant points to a discussion of Figures 1 and 2 beginning at page 6, line 22, to page 7, line 10, as follows:

A silicon oxidation layer 27 is formed on a region 24 located between the source regions 23 formed within the base regions 21. Further, the source electrode 22 is not ~~existed~~present at an upper part of the silicon oxidation layer 22, and an opening 25 is located on the silicon oxidation layer 27. On the other hand, a crystal defect region 11 is formed at a position in the n⁻ type layer 7 and below the silicon oxidation layers 27.

Fig. 2 is a perspective view of the IGBT 1 before forming the passivation layer 29. As described, the silicon oxidation layer 27 is formed above ~~of~~ the crystal defect region 11, and the opening 25 is located on the silicon oxidation layers 27. In this way, the source electrode 22 made of aluminum can be used both for a wiring, and a mask for the beams.

The language "a crystal defect region 11 is formed at a position in the n⁻ type layer 7 and below the silicon oxidation layers 27." and also "opening 25 is located on the silicon oxidation layers 27" has a singular/plural inconsistency, but when considered relative to Figure 2 showing the two openings 25, it is clear that the inconsistency should be resolved to support the plural language. This also is the only reasonable way to understand the various unidentified partial openings in other figures.

Applicant apologizes for the errors and inconsistency in the application, but submits that there is only one fair and reasonable manner of interpretation. Applicant requests the Examiner to reconsider and to enter the proposed correction to Figure 1.

The Examiner rejected claims 9-14 under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The Examiner states:

There is no support for radiating rays passing to the region irradiated through the opening and generating crystal defects under the opening so that a smaller amount of radiating rays are irradiated to regions in the substrates except the region under

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the opening, as recited in claims 9 and 10, since originally filed Figure 1 depicts a smaller amount of radiating rays are irradiated to regions under the openings.

Applicant submits that the right and left sides of Figure 1 should be corrected as proposed and that a fair reading of the specification and other figures supports the correction. In that case, claims 9 and 10 do comply with the written description requirement and the present rejection should be withdrawn.

The Examiner rejected claims 9-14 under 35 U.S.C. 112, second paragraph, as being indefinite. The Examiner indicates that the claims do not recite "a smaller amount" from which quantity. Claim 9 has been amended to indicate "a smaller amount of radiating rays are irradiated to regions in said substrate as compared with said region under the opening". There is now relative language which provides for "a smaller amount". It is submitted that the 112 second paragraph rejection should also be withdrawn.

The Examiner rejected claims 9 and 11-12 under 35 U.S.C. 102(e) as being anticipated by Sakamoto. The Examiner rejected claim 10 under 35 U.S.C. 103(a) as being obvious on consideration of Sakamoto.

In Sakamoto, a silicon nitride film is provided such that it has an opening vertically above a pn junction so that the silicon nitride film restrains exposure to particle rays in areas other than the pn junction. Electrodes 18, 19 made of aluminum are provided on the silicon nitride film.

Claim 9 has been amended to make it more clear that the metal wiring layer is located over the "entire" substrate except at an opening above the region irradiated. Support for the amendment is found at page 8, lines 12-14 and also Figure 2.

In the semiconductor device of claim 9, the metal wiring layer is a layer which is located over the entire substrate except at the opening above the region irradiated. The metal wiring layer is a single electrode as indicated in Figure 2. Electrodes 18, 19 of Sakamoto are a pair of electrodes which could not form an opening as claimed and still function as different electrodes. In any case, Sakamoto does not use electrodes 18, 19 as a shielding layer, but rather has a separate silicon nitride layer which restrains exposure to particle rays during manufacture. The silicon nitride layer and the pair of electrodes 18, 19 of Sakamoto are clearly different from the metal wiring layer having an opening as claimed in claim 9. Sakamoto does not disclose and

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cannot anticipate a metal wiring layer located over the entire substrate except at an opening above the region irradiated.

Claims 10-12 depend from claim 9 and further define it. Applicant does not acquiesce in the independent rejection of these claims, but they need not be further distinguished at this time.

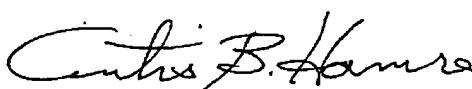
The Examiner rejected claims 13-14 under 35 U.S.C. 103(a) as being obvious in consideration of Sakamoto in view of Takahashi. Claims 13-14 depend from claims which depend from claim 9. Applicant also does not acquiesce in the independent rejection of these claims, but they also do not need separate distinction at this time.

In view of the above, it is submitted that the application is in condition for allowance. Reconsideration and reexamination are requested. Allowance of claims 9-14 at an early date is solicited.

Respectfully submitted,

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